

At page 72, line 27, replace "Figure 559" with --Figures 1B - 383B (SEQ ID NOs:1-383)-
- after " as shown in"; and

line 28, replace "Current Protocols in Molecular Biology" with
--*Current Protocols in Molecular Biology*--.

Please also substitute Figures 1B-383B contained in substitute pages 1-407,
submitted herewith for original Figure 559. In Figures 1B-383B, nucleic acid sequences
have been rearranged to match the order of the corresponding amino acid sequence in
Figures 1A-558A. In addition, the nucleic acid sequences contained in Figures 1B-383B
have been labeled HPP1B through HPP555B according to the corresponding polypeptide
sequence.

In the Claims:

A Please cancel claims 2-6.

Please add new claims 2-87.

Rule 1.126
2. (New) The preparation of claim 1, wherein said *H. pylori* polypeptide is
selected from the group consisting of HPP1-54 (SEQ ID NOs:384-430) and HPP56-99
(SEQ ID NOs:432-472).

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3. (New) The preparation of claim 1, wherein said *H. pylori* polypeptide is
selected from the group consisting of HPP101-128 (SEQ ID NOs:474-497), HPP130-146
(SEQ ID NOs:499-513), HPP148-196 (SEQ ID NOs:515-558) and HPP198-199 (SEQ ID
NOs:560-561).

A
9
4. (New) The preparation of claim 1, wherein said *H. pylori* polypeptide is
selected from the group consisting of HPP200-260 (SEQ ID NOs:562-619) and HPP262-
299 (SEQ ID NOs:621-655).

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5. (New) The preparation of claim 1, wherein said *H. pylori* polypeptide is
selected from the group consisting of HPP300-305 (SEQ ID NOs:656-660), HPP307-325
(SEQ ID NOs:662-680), HPP327-369 (SEQ ID NOs:682-714) and HPP 371-399 (SEQ
ID NOs:715-739).

11
6. (New) The preparation of claim 1, wherein said *H. pylori* polypeptide is selected from the group consisting of HPP400-499 (SEQ ID NOs:740-833).

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7. (New) The preparation of claim 1, wherein said *H. pylori* polypeptide is selected from the group consisting of HPP500-558 (SEQ ID NOs:834-880).

subc, 13
8. (New) A substantially pure nucleic acid encoding an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

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9. (New) The substantially pure nucleic acid of claim 8, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP1 (SEQ ID NO:384), HPP5-8 (SEQ ID NOs:386-389), HPP10-19 (SEQ ID NOs:391-400), HPP21-25 (SEQ ID NOs:403-406), HPP27 (SEQ ID NO:408), HPP30-31 (SEQ ID NO:411-412), HPP36-40 (SEQ ID NOs:414-418), HPP42-45 (SEQ ID NOs:419-422), HPP47-54 (SEQ ID NOs:423-430), HPP56-57 (SEQ ID NOs:432-433), HPP59 (SEQ ID NO:434), HPP61-65 (SEQ ID NOs:436-440), HPP67 (SEQ ID NO:441), HPP69-70 (SEQ ID NOs:443-444), HPP72-74 (SEQ ID NOs:446-448), HPP76-88 (SEQ ID NOs:450-462), HPP91-92 (SEQ ID NOs:465-466), HPP95-96 (SEQ ID NOs:468-469) and HPP98-99 (SEQ ID NOs:471-472).

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10. (New) The substantially pure nucleic acid of claim 8, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP100 (SEQ ID NO:473), HPP102 (SEQ ID NO:475), HPP105-106 (SEQ ID NO:478-479), HPP108-109 (SEQ ID NOs: 481-482), HPP112-113 (SEQ ID NOs:483-484), HPP115 (SEQ ID NO:486), HPP117-122 (SEQ ID NOs:488-493), HPP125-132 (SEQ ID NOs:494-501), HPP134-135 (SEQ ID NOs:503-504), HPP137-138 (SEQ ID NOs:505-506), HPP142-143 (SEQ ID NOs:509-510), HPP145-147 (SEQ ID NOs:512-514), HPP149 (SEQ ID NO:516), HPP151-153 (SEQ ID NOs:518-520), HPP155 (SEQ ID NO:522), HPP158-160 (SEQ ID NOs: 523-525), HPP162-167 (SEQ ID NOs:527-532), HPP169 (SEQ ID NO:533), HPP171-172 (SEQ ID NOs:535-536), HPP174 (SEQ ID NO:537), HPP176-177 (SEQ ID NOs:539-540), HPP179-181 (SEQ ID NOs:542-544), HPP184-186 (SEQ ID NOs:546-548), HPP188 (SEQ ID NO:550), HPP191-194 (SEQ ID NOs:553-556), HPP-196 (SEQ ID NO:558) and HPP198 (SEQ ID NO:560).

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11. (New) The substantially pure nucleic acid of claim 8, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP200-203 (SEQ ID NOs:562-565), HPP205 (SEQ ID NO:566), HPP207-208 (SEQ ID NOs:567-568), HPP210 (SEQ ID NO:570), HPP212-219 (SEQ ID NOs:572-579), HPP221-223 (SEQ ID NOs:581-583), HPP225-233 (SEQ ID NOs:585-593), HPP236-242 (SEQ ID NOs:596-602), HPP244-255 (SEQ ID NOs:603-614), HPP258-264 (SEQ ID NOs:617-623), HPP266 (SEQ ID NO:625), HPP268 (SEQ ID NO:627), HPP270-272 (SEQ ID NOs:629-631), HPP274 (SEQ ID NO:633), HPP276-277 (SEQ ID NOs:635-636), HPP280-282 (SEQ ID NOs:638-640), HPP284 (SEQ ID NO:642), HPP286 (SEQ ID NO:643), HPP290 (SEQ ID NO:647), HPP292-293 (SEQ ID NOs:649-650), HPP295 (SEQ ID NO:651) and HPP297-299 (SEQ ID NOs:653-655).

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12. (New) The substantially pure nucleic acid of claim 8, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP300 (SEQ ID NO:656), HPP302-306 (SEQ ID NOs:657-661), HPP308-315 (SEQ ID NOs:663-670), HPP318-319 (SEQ ID NOs:673-674), HPP321 (SEQ ID NO:676), HPP323-327 (SEQ ID NOs:678-682), HPP330 (SEQ ID NO:683), HPP335-338 (SEQ ID NOs:687-690), HPP341-342 (SEQ ID NOs:691-692), HPP345-347 (SEQ ID NOs:694-696), HPP349-350 (SEQ ID NOs:697-698), HPP352-355 (SEQ ID NOs:699-702), HPP359-362 (SEQ ID NOs:705-708), HPP367-369 (SEQ ID NOs:712-714), HPP372-373 (SEQ ID NOs:716-717), HPP375-379 (SEQ ID NOs:718-722), HPP382-387 (SEQ ID NOs:725-730), HPP389-390 (SEQ ID NOs:732-733), HPP393-395 (SEQ ID NOs:735-737) and HPP398-399 (SEQ ID NOs:738-739).

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13. (New) The substantially pure nucleic acid of claim 8, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP401-405 (SEQ ID NOs:740-744), HPP407 (SEQ ID NO:746), HPP409-414 (SEQ ID NOs:747-752), HPP417-419 (SEQ ID NOs:755-757), HPP421 (SEQ ID NO:759), HPP423-425 (SEQ ID NOs:761-763), HPP429-431 (SEQ ID NOs:767-769), HPP433-436 (SEQ ID NOs:770-773), HPP438 (SEQ ID NO:775), HPP440 (SEQ ID NO:777), HPP442-447 (SEQ ID NOs:779-784), HPP450-451 (SEQ ID NOs:786-787), HPP453-456 (SEQ ID NOs:789-792), HPP458 (SEQ ID NO:794), HPP460 (SEQ ID NO:796), HPP462-465 (SEQ ID NOs:798-801), HPP467-470 (SEQ ID NOs:802-805), HPP472-476 (SEQ ID NOs:807-811), HPP478-479 (SEQ ID NOs:813-814), HPP481-485 (SEQ ID NOs:815-819),

HPP487-488 (SEQ ID NOs:821-822), HPP490-492 (SEQ ID NOs:824-826) and HPP494-498 (SEQ ID NOs:828-832).

19. (New) The substantially pure nucleic acid of claim 8, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP501-506 (SEQ ID NOs:835-845), HPP508 (SEQ ID NO:841), HPP510-511 (SEQ ID NOs:843-844), HPP513-517 (SEQ ID NOs:845-849), HPP519-520 (SEQ ID NOs:850-851), HPP522 (SEQ ID NO:853), HPP525 (SEQ ID NO:855), HPP527-528 (SEQ ID NOs:856-857), HPP532-535 (SEQ ID NOs:859-862), HPP541 (SEQ ID NO:866), HPP543-545 (SEQ ID NOs:868-870), HPP547 (SEQ ID NO:871), HPP549-552 (SEQ ID NOs:873-876) and HPP555 (SEQ ID NO:879).

20. (New) A recombinant or substantially pure preparation of a polypeptide having at least 60% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

21. (New) The preparation of claim 15, wherein said polypeptide has at least 80% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

22. (New) The preparation of claim 15, wherein said polypeptide has at least 90% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

23. (New) The preparation of claim 15, wherein said polypeptide has at least 95% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

24. (New) The preparation of claim 15, wherein said polypeptide has at least 98% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

25. (New) The preparation of claim 15, wherein said polypeptide has at least 99% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

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21. (New) A substantially pure nucleic acid encoding a polypeptide having at least 60% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

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22. (New) The substantially pure nucleic acid of claim 21, wherein said encoded polypeptide has at least 70% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

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23. (New) The substantially pure nucleic acid of claim 21, wherein said encoded polypeptide has at least 80% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

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24. (New) The substantially pure nucleic acid of claim 21, wherein said encoded polypeptide has at least 90% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

30
25. (New) The substantially pure nucleic acid of claim 21, wherein said encoded polypeptide has at least 95% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

31
26. (New) The substantially pure nucleic acid of claim 21, wherein said encoded polypeptide has at least 98% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

32
27. (New) The substantially pure nucleic acid of claim 21, wherein said encoded polypeptide has at least 99% homology with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

33
28. (New) A vaccine composition for prevention or treatment of *H. pylori* infection comprising an effective amount of an *H. pylori* polypeptide or a fragment thereof selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880), and a pharmaceutically acceptable carrier.

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29. (New) The vaccine composition of claim 28, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP1-54 (SEQ ID NOs:384-430) and HPP56-99 (SEQ ID NOs:432-472).

35
30. (New) The vaccine composition of claim 28, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP101-128 (SEQ ID NOs:474-497), HPP130-146 (SEQ ID NOs:499-513), HPP148-196 (SEQ ID NOs:515-558) and HPP198-199 (SEQ ID NOs:560-561).

36
31. (New) The vaccine composition of claim 28, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP200-260 (SEQ ID NOs:562-619) and HPP262-299 (SEQ ID NOs:621-655).

37
32. (New) The vaccine composition of claim 28, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP300-305 (SEQ ID NOs:656-660), HPP307-325 (SEQ ID NOs:662-680), HPP327-369 (SEQ ID NOs:682-714), and HPP371-399 (SEQ ID NOs:715-739).

38
33. (New) The vaccine composition of claim 28, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP400-499 (SEQ ID NOs:740-833).

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34. (New) The vaccine composition of claim 28, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP500-558 (SEQ ID NOs:834-880).

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35. (New) A method of treating a subject for *H. pylori* infection comprising administering to a subject a vaccine composition comprising an effective amount of an *H. pylori* polypeptide or a fragment thereof selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880), and a pharmaceutically acceptable carrier, such that treatment of *H. pylori* infection occurs.

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36. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP1-54 (SEQ ID NOs:384-430) and HPP56-99 (SEQ ID NOs:432-472).

42
37. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP101-128 (SEQ ID NOs:474-497), HPP130-146 (SEQ ID NOs:499-513), HPP148-196 (SEQ ID NOs:515-558), and HPP198-199 (SEQ ID NOs:560-561).

43
38. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP200-260 (SEQ ID NOs:562-619) and HPP262-299 (SEQ ID NOs:621-655).

44
39. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP300-305 (SEQ ID NOs:656-660), HPP307-325 (SEQ ID NOs:662-680), HPP327-369 (SEQ ID NOs:682-714), and HPP371-399 (SEQ ID NOs:715-739).

45
40. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP400-499 (SEQ ID NOs:740-833).

46
41. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is selected from the group consisting of HPP500-558 (SEQ ID NOs:834-880).

47
42. (New) The method of claims 35 through 41 wherein the treatment is a prophylactic treatment.

48
43. (New) The method of claims 35 through 41 wherein the treatment is a therapeutic treatment.

49
44. (New) The method of claim 35, wherein said *H. pylori* polypeptide or fragment thereof is administered in a presence of an adjuvant.

50
45. (New) A method of evaluating a compound for the ability to bind an *H. pylori* polypeptide comprising: contacting said compound with an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880) and determining if said compound binds said *H. pylori* polypeptide.

51
46. (New) The method of claim 45, wherein said compound is an activator of the bacterial life cycle.

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47. (New) The method of claim 45, wherein said compound is an inhibitor of the bacterial life cycle.

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48. (New) The method of claim 45, wherein said method is performed *in vitro*.

54
49. (New) The method of claim 45, wherein said method is performed *in vivo*.

55
50. (New) A method of evaluating a compound for the ability to bind an *H. pylori* nucleic acid comprising: contacting said compound with an *H. pylori* nucleic acid selected from the group shown in Fig. 1B-383B (SEQ ID NOs:1-383) and determining if said compound binds said *H. pylori* nucleic acid.

56
51. (New) The method of claim 50, wherein said compound is an activator of the bacterial life cycle.

57
52. (New) The method of claim 50, wherein said compound is an inhibitor of the bacterial life cycle.

58
53. (New) The method of claim 50, wherein said method is performed *in vitro*.

59
54. (New) The method of claim 50, wherein said method is performed *in vivo*.

60
55. (New) A method of generating a vaccine for immunizing a subject against *H. pylori* infection comprising: immunizing said subject with an *H. pylori* polypeptide or a fragment thereof selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880), and a therapeutically acceptable carrier.

61
56. (New) The method of claim 55, wherein said *H. pylori* polypeptide or fragment thereof is a modified immunogenic *H. pylori* polypeptide.

62
57. (New) A method of detecting the presence of a *Helicobacter* species in a sample comprising:

contacting said sample with a nucleic acid encoding an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880);
hybridizing said sample to said nucleic acid;
said hybridization being indicative of the presence of said *Helicobacter* species in said sample.

63
58. (New) The method of claim 57, wherein said *Helicobacter* species is *H. pylori*.

64
59. (New) The method of claim 57, wherein said nucleic acid is 20 or more nucleotides in length.

65
60. (New) A method of detecting the presence of a *Helicobacter* species in a sample comprising:

contacting said sample with a nucleic acid comprising a nucleotide sequence of genomic DNA 5' to genomic DNA which encodes a sequence selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880);

hybridizing said sample to said nucleic acid;
said hybridization being indicative of the presence of said *Helicobacter* species in said sample.

66
61. (New) The method of claim 60, wherein said *Helicobacter* species is *H. pylori*.

67
62. (New) The method of claim 60, wherein said nucleic acid is 20 or more nucleotides in length.

68
63. (New) A method of detecting *H. pylori* antibodies in a sample comprising:
contacting said sample with an *H. pylori* antigen selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

69
64. (New) The method of claim 63, wherein said sample is from an individual infected with *H. pylori*.

70. (New) A method of inhibiting expression of a gene from a *Helicobacter* species comprising: administering to said species an *H. pylori* antisense nucleic acid selected from the group shown in Fig. 1B-383B (SEQ ID NOs:1-383).

71. (New) The method of claim 65, wherein said *Helicobacter* species is *H. pylori*.

72. (New) The method of claim 65, wherein said antisense nucleic acid is administered in a carrier.

73. The method of claim 67, wherein said carrier is a liposome or a bacteriophage.

74. (New) The method of claim 65, wherein said antisense nucleic acid is 20 or more nucleotides in length.

75. (New) The method of claim 65, wherein said antisense nucleic acid is capable of binding to *Helicobacter* nucleic acid or mRNA.

76. (New) A method of making a fragment or analog of an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880) comprising: altering the sequence of said *H. pylori* polypeptide, and testing said altered polypeptide for the desired activity.

77. (New) The method of claim 71, wherein said desired activity is ability to mediate attachment of an *H. pylori* to a cell.

78. (New) The method of claim 71, wherein said *H. pylori* polypeptide sequence is altered by a substitution or a deletion of one or more residues.

79. (New) A substantially pure nucleic acid from a naturally occurring *H. pylori* which hybridizes under stringent conditions to a nucleic acid sequence which encodes an *H. pylori* polypeptide selected from the group consisting of HPP1 through HPP558 (SEQ ID NOs:384-880).

80
75. (New) The substantially pure nucleic acid of claim 74, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP1 (SEQ ID NO:384), HPP5-8 (SEQ ID NOs:386-389), HPP10-19 (SEQ ID NOs:391-400), HPP21-25 (SEQ ID NOs:402-406), HPP27 (SEQ ID NO:408), HPP30-31 (SEQ ID NOs:411-412), HPP36-40 (SEQ ID NOs:414-18), HPP42-45 (SEQ ID NOs:419-22), HPP47-54 (SEQ ID NOs:423-430), HPP56-57 (SEQ ID NOs:432-433), HPP59 (SEQ ID NO:434), HPP61-65 (SEQ ID NOs:436-440), HPP67 (SEQ ID NO:441), HPP69-70 (SEQ ID NOs:443-444), HPP72-74 (SEQ ID NOs:446-448), HPP76-88 (SEQ ID NOs:450-462), HPP91-92 (SEQ ID NOs:465-466), HPP95-96 (SEQ ID NOs:468-469) and HPP98-99 (SEQ ID NOs:471-472).

81
76. (New) The substantially pure nucleic acid of claim 74, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP100 (SEQ ID NO:473), HPP102 (SEQ ID NO:475), HPP105-106 (SEQ ID NO:478-479), HPP108-109 (SEQ ID NOs: 481-482), HPP112-113 (SEQ ID NOs:483-484), HPP115 (SEQ ID NO:486), HPP117-122 (SEQ ID NOs:488-493), HPP125-132 (SEQ ID NOs:494-501), HPP134-135 (SEQ ID NOs:503-504), HPP137-138 (SEQ ID NOs:505-506), HPP142-143 (SEQ ID NOs:509-510), HPP145-147 (SEQ ID NOs:512-514), HPP149 (SEQ ID NO:516), HPP151-153 (SEQ ID NOs:518-520), HPP155 (SEQ ID NO:522), HPP158-160 (SEQ ID NOs: 523-525), HPP162-167 (SEQ ID NOs:527-532), HPP169 (SEQ ID NO:533), HPP171-172 (SEQ ID NOs:535-536), HPP174 (SEQ ID NO:537), HPP176-177 (SEQ ID NOs:539-540), HPP179-181 (SEQ ID NOs:542-544), HPP184-186 (SEQ ID NO:546-548), HPP188 (SEQ ID NO:550), HPP191-194 (SEQ ID NOs:553-556), HPP-196 (SEQ ID NO:558) and HPP198 (SEQ ID NO:560).

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77. (New) The substantially pure nucleic acid of claim 74, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP200-203 (SEQ ID NOs:562-565), HPP205 (SEQ ID NO:566), HPP207-208 (SEQ ID NOs:567-568), HPP210 (SEQ ID NO:570), HPP212-219 (SEQ ID NOs:572-579), HPP221-223 (SEQ ID NOs:581-583), HPP225-233 (SEQ ID NOs:585-593), HPP236-242 (SEQ ID NOs:596-602), HPP244-255 (SEQ ID NOs:603-614), HPP258-264 (SEQ ID NOs:617-623), HPP266 (SEQ ID NO:625), HPP268 (SEQ ID NO:627), HPP270-272 (SEQ ID NOs:629-631), HPP274 (SEQ ID NO:633), HPP276-277 (SEQ ID NOs:635-636), HPP280-282 (SEQ ID NOs:638-640), HPP284 (SEQ ID NO:642), HPP286 (SEQ ID NO:643), HPP290 (SEQ ID NO:647), HPP292-293 (SEQ ID NOs:649-650), HPP295 (SEQ ID NO:651) and HPP297-299 (SEQ ID NOs:653-655).

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78. (New) The substantially pure nucleic acid of claim 74, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP300 (SEQ ID NO:656), HPP302-306 (SEQ ID NOs:657-661), HPP308-315 (SEQ ID NOs:663-670), HPP318-319 (SEQ ID NOs:673-674), HPP321 (SEQ ID NO:676), HPP323-327 (SEQ ID NOs:678-682), HPP330 (SEQ ID NO:683), HPP335-338 (SEQ ID NOs:687-690), HPP341-342 (SEQ ID NOs:691-692), HPP345-347 (SEQ ID NOs:694-696), HPP349-350 (SEQ ID NOs:697-698), HPP352-355 (SEQ ID NOs:699-702), HPP359-362 (SEQ ID NOs:705-708), HPP367-369 (SEQ ID NOs:712-714), HPP372-373 (SEQ ID NOs:716-717), HPP375-379 (SEQ ID NOs:718-722), HPP382-387 (SEQ ID NOs:725-730), HPP389-390 (SEQ ID NOs:732-733), HPP393-395 (SEQ ID NOs:735-737) and HPP398-399 (SEQ ID NOs:738-739).

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79. (New) The substantially pure nucleic acid of claim 74, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP401-405 (SEQ ID NOs:740-744), HPP407 (SEQ ID NO:746), HPP409-414 (SEQ ID NOs:747-752), HPP417-419 (SEQ ID NOs:755-757), HPP421 (SEQ ID NO:759), HPP423-425 (SEQ ID NOs:761-763), HPP429-431 (SEQ ID NOs:767-769), HPP433-436 (SEQ ID NOs:770-773), HPP438 (SEQ ID NO:775), HPP440 (SEQ ID NO:777), HPP442-447 (SEQ ID NOs:779-784), HPP450-451 (SEQ ID NOs:786-787), HPP453-456 (SEQ ID NOs:789-792), HPP458 (SEQ ID NO:794), HPP460 (SEQ ID NO:796), HPP462-465 (SEQ ID NOs:798-801), HPP467-470 (SEQ ID NOs:802-805), HPP472-476 (SEQ ID NOs:807-811), HPP478-479 (SEQ ID NOs:813-814), HPP481-485 (SEQ ID NOs:815-819), HPP487-488 (SEQ ID NOs:821-822), HPP490-492 (SEQ ID NOs:824-826) and HPP494-498 (SEQ ID NOs:828-832).

85
80. (New) The substantially pure nucleic acid of claim 74, wherein said encoded *H. pylori* polypeptide is selected from the group consisting of HPP501-506 (SEQ ID NOs:835-840), HPP508 (SEQ ID NO:841), HPP510-511 (SEQ ID NOs:843-844), HPP513-517 (SEQ ID NOs:845-849), HPP519-520 (SEQ ID NOs:850-851), HPP522 (SEQ ID NO:853), HPP525 (SEQ ID NO:855), HPP527-528 (SEQ ID NOs:856-857), HPP532-535 (SEQ ID NOs:859-862), HPP541 (SEQ ID NO:866), HPP543-545 (SEQ ID NOs:868-870), HPP547 (SEQ ID NO:871), HPP549-552 (SEQ ID NOs:873-876) and HPP555 (SEQ ID NO:879).

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81. (New) A substantially pure nucleic acid encoding an *H. pylori* polypeptide, said nucleic acid comprising a nucleotide sequence shown in Figures 1B-383B (SEQ ID NOs:1-383).

87
82. (New) The substantially pure nucleic acid of claim 81, wherein said nucleotide sequence is selected from the group consisting of HPP1B (SEQ ID NO:1), HPP5-8B (SEQ ID NOs:2-5), HPP10-19B (SEQ ID NOs:6-15), HPP21-25B (SEQ ID NOs:16-20), HPP27B (SEQ ID NO:21), HPP30-31B (SEQ ID NOs:22-23), HPP36-40B (SEQ ID NOs:24-28), HPP42-45B (SEQ ID NOs:29-32), HPP47-54B (SEQ ID NOs:33-40), HPP56-57B (SEQ ID NOs:41-42), HPP59B (SEQ ID NO:43), HPP61-65B (SEQ ID NOs:44-48), HPP67B (SEQ ID NO:49), HPP69-70B (SEQ ID NOs:50-51), HPP72-74B (SEQ ID NOs:52-54), HPP76-88B (SEQ ID NOs:55-67), HPP91-92B (SEQ ID NOs:68-69), HPP95-96B (SEQ ID NOs:70-71) and HPP98-99B (SEQ ID NOs:72-73).

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83. (New) The substantially pure nucleic acid of claim 81, wherein said nucleotide sequence is selected from the group consisting of HPP100B (SEQ ID NO:74), HPP102B (SEQ ID NO:75), HPP105-106B (SEQ ID NO:76-77), HPP108-109B (SEQ ID NOs:78-79), HPP112-113B (SEQ ID NOs:80-81), HPP115B (SEQ ID NO:82), HPP117-122B (SEQ ID NOs:83-88), HPP125-132B (SEQ ID NOs:89-96), HPP134-135B (SEQ ID NOs:97-98), HPP137-138B (SEQ ID NOs:99-100), HPP142-143B (SEQ ID NOs:101-102), HPP145-147B (SEQ ID NOs:103-105), HPP149B (SEQ ID NO:106), HPP151-153B (SEQ ID NOs:107-109), HPP155B (SEQ ID NO:110), HPP158-160B (SEQ ID NOs:111-113), HPP162-167B (SEQ ID NOs:114-119), HPP169B (SEQ ID NO:120), HPP171-172B (SEQ ID NOs:121-122), HPP174B (SEQ ID NO:123), HPP176-177B (SEQ ID NOs:124-125), HPP179-181B (SEQ ID NOs:126-128), HPP184-186B (SEQ ID NO:129-131), HPP188B (SEQ ID NO:132), HPP191-194B (SEQ ID NOs:133-136), HPP196B (SEQ ID NO:137) and HPP198B (SEQ ID NO:138).

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84. (New) The substantially pure nucleic acid of claim 81, wherein said nucleotide sequence is selected from the group consisting of HPP200-203B (SEQ ID NOs:139-142), HPP205B (SEQ ID NO:143), HPP207-208B (SEQ ID NOs:144-145), HPP210B (SEQ ID NO:146), HPP212-219B (SEQ ID NOs:147-154), HPP221-223B (SEQ ID NOs:155-157), HPP225-233B (SEQ ID NOs:158-166), HPP236-242B (SEQ ID NOs:167-173), HPP244-255B (SEQ ID NOs:174-185), HPP258-264B (SEQ ID NOs:186-192), HPP266B (SEQ ID NO:193), HPP268B (SEQ ID NO:194), HPP270-272B (SEQ ID NOs:195-197), HPP274B (SEQ ID NO:198), HPP276-277B (SEQ ID

NOs:199-200), HPP280-282B (SEQ ID NOs:201-203), HPP284B (SEQ ID NO:204), HPP286B (SEQ ID NO:205), HPP290B (SEQ ID NO:206), HPP292-293B (SEQ ID NOs:207-208), HPP295B (SEQ ID NO:209) and HPP297-299B (SEQ ID NOs:210-212).

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85. (New) The substantially pure nucleic acid of claim 81, wherein said nucleotide sequence is selected from the group consisting of HPP300B (SEQ ID NO:213), HPP302-306B (SEQ ID NOs:214-218), HPP308-315B (SEQ ID NOs:219-226), HPP318-319B (SEQ ID NOs:227-228), HPP321B (SEQ ID NO:229), HPP323-327B (SEQ ID NOs:230-234), HPP330B (SEQ ID NO:235), HPP335-338B (SEQ ID NOs:236-239), HPP341-342B (SEQ ID NOs:240-241), HPP345-347B (SEQ ID NOs:242-244), HPP349-350B (SEQ ID NOs:245-246), HPP352-355B (SEQ ID NOs:247-250), HPP359-362B (SEQ ID NOs:251-254), HPP367-369B (SEQ ID NOs:255-257), HPP372-373B (SEQ ID NOs:258-259), HPP375-379B (SEQ ID NOs:260-264), HPP382-387B (SEQ ID NOs:265-270), HPP389-390B (SEQ ID NOs:271-272), HPP393-395B (SEQ ID NOs:273-275) and HPP398-399B (SEQ ID NOs:276-277).

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86. (New) The substantially pure nucleic acid of claim 81, wherein said nucleotide sequence is selected from the group consisting of HPP401-405B (SEQ ID NOs:278-282), HPP407B (SEQ ID NO:283), HPP409-414B (SEQ ID NOs:284-289), HPP417-419B (SEQ ID NOs:290-292), HPP421B (SEQ ID NO:293), HPP423-425B (SEQ ID NOs:294-296), HPP429-431B (SEQ ID NOs:297-299), HPP433-436B (SEQ ID NOs:300-303), HPP438B (SEQ ID NO:304), HPP440B (SEQ ID NO:305), HPP442-447B (SEQ ID NOs:306-311), HPP450-451B (SEQ ID NOs:312-313), HPP453-456B (SEQ ID NOs:314-317), HPP458B (SEQ ID NO:318), HPP460B (SEQ ID NO:319), HPP462-465B (SEQ ID NOs:320-323), HPP467-470B (SEQ ID NOs:324-327), HPP472-476B (SEQ ID NOs:328-332), HPP478-479B (SEQ ID NOs:333-334), HPP481-485B (SEQ ID NOs:335-339), HPP487-488B (SEQ ID NOs:340-341), HPP490-492B (SEQ ID NOs:342-344) and HPP494-498B (SEQ ID NOs:345-349).

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87. (New) The substantially pure nucleic acid of claim 81, wherein said nucleotide sequence is selected from the group consisting of HPP501-506B (SEQ ID NOs:350-355), HPP508B (SEQ ID NO:356), HPP510-511B (SEQ ID NOs:357-358), HPP513-517B (SEQ ID NOs:359-363), HPP519-520B (SEQ ID NOs:364-365), HPP522B (SEQ ID NO:366), HPP525B (SEQ ID NO:367), HPP527-528B (SEQ ID NOs:368-369), HPP532-535B (SEQ ID NOs:370-373), HPP541B (SEQ ID NO:374),